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14. INTRASPECIFIC COLOUR VARIATION IN SPIDER *PARAWIXIA DEHAANII* (DOLESCHALL) (ARANEIDAE; ARANEAE), A CASE STUDY IN SANJAY GANDHI NATIONAL PARK, BORIVLI, MUMBAI, MAHARASHTRA, INDIA¹

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The Araneid genus *Parawixia* was raised by F.O.P. Cambridge in 1904 with the type species *P. descripta* (F.O.P. Cambridge); the genus has a wide range of distribution in South America, Mexico, India, Malaysia and Japan. *P. dahanii* (Doleschall) is the only known Indian species so far reported from Karnataka, West Bengal, Gujarat and Sikkim states. The present report is the first report from Maharashtra in Sanjay Gandhi National Park, Borivli, Mumbai. Recently, the species has been reported by about 15-16 female specimens almost in the same locality of SGNP. It was very surprising to note the different colour morphs among the same population of this species.

The broad identification characteristics of *Parawixia dehaanii* (Doleschall) total body size ranges between 18-22 mm in length, cephalothorax longer than wide, narrowing in front, typically clothed with white pubescence in middle portion, spines and hair with granular base on cephalic region elevated in the middle, forming a bulge just behind the ocular area, ocular quad slightly wider in front than behind and situated on elevation, lateral eyes nearly same in size, placed closely and situated at the base of horn-like tubercles; chelicerae strong, reddish-brown with moderate boss at the base; legs long and strong without band but darker on tarsi; abdomen triangular acutely pointed posteriorly and on anterior lateral spine like shoulder humps, five pairs of sigilla on dorsum arranged mid-longitudinally, epigynum with swollen base provided with stout, beak-like pointed, unwrinkled scape, bent at right angle with the base.

The described colour pattern shows chalk white transverse band extending between the pair of anterior lateral shoulder humps, dark brown on rest of the abdomen dorsum, ventrum grayish brown patches (Fig. 1a).

The female specimens recently collected at SGNP show four variants of abdominal colour pattern.

(1) Abdomen grayish with light brown tinge and a conspicuous 'V' like darker brown patch in the center of the abdomen giving more pointed appearance to the anterior lateral shoulder humps (Fig. 1b).

(2) Abdomen is completely light reddish brown with only two white dots between the anterior lateral shoulder humps. (Fig. 1c).

(3) Abdomen yellowish brown with some black patches in 'V' shape manner and rest of the abdomen blackish (Fig. 1d).

(4) Abdomen completely blackish brown without any markings (Fig. 1e).

The colour morphs in spider are known and have been discussed by different workers, unfortunately except Tikader, there are almost no authentic reports on such aspects from India. Tikader (1982) have reported as many as 18 colour morphs in *Neoscona mikerjai* (Tikader), a common colonial species in and around Pune city (Maharashtra). Campon (2001) reported colour variations in the colonial species *Parawixia bistrata*, he states that adult females are present in two distinct colour morphs (brown and yellow opisthosomes), which make the individuals cryptic on the substrates they are found during their solitary stage prior to oviposition; leaf substrates or on the branches and trunks of trees. His experiment showed that the yellow morph individuals exhibit substrates preference whereas the brown morph individuals do not.

Tikader (1982) has discussed the possible factors associated with colour variation in animals, such as (a) altitude, latitude and longitude, (b) climate, (c) rainfall,



Fig. 1: Colour variation in *Parawixia dehaanii* (Doleschall):
 a. chalk white transverse band extending between the pair of anterior lateral shoulder humps; b. a conspicuous 'V' like darker brown patch in the center of the abdomen;
 c. Abdomen with only two white dots between the anterior lateral shoulder humps; d. Abdomen with some black patches in 'V' shape; e. Abdomen without any markings

surrounding, vegetation. Rainbow (1898) pointed out that spiders could change their colour according to the colour of flowers where they hide for hunting insect prey.

This is very common in *Thomisus* sp. (Crab spiders), but this is changeable colour form not fix colour patterns.

The spiders of the genus *Parawixia* are orb web weavers, and wait away from the web in a retreat made up of leaves of an inhabiting plant and fastened together with a silk thread, placed a little away above or on sides of the web. The spider may change its colour to camouflage the leaf

substrate or the branches and trunk of the tree. The present variant morphs of *Parawixia dehaanii* have been observed in the same population of the same locality, but were not communally colonized.

The authors are of the opinion that spiders being carnivorous animals, feed on various invertebrate biomasses which might have a role to play in the colour variation among the spider populations inhabiting the same macro-ecosystems.

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15. *BOTHRIOCHLOA INSCULPTA* (HOCHST.) A. CAMUS (POACEAE) – A NEW RECORD FOR RAJASTHAN¹

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During a plant collection visit to Sadhuwali, Sriganganagar district, north-west Rajasthan, we collected *Bothriochloa insculpta* (Hochst.) A. Camus from the beds of IGC and nearby fields. A perusal of the literature shows that this species has hitherto not been reported from Rajasthan (Shetty and Singh 1987-93).

It is known so far from Madras (now Chennai) (Gamble 1967). The specimens have been deposited in the Herbarium, Department of Botany, Govt. Dungar College, Bikaner, Rajasthan. The identification of the species is based on Bor (1960).

Bothriochloa insculpta (Hochst.) A. Camus in Ann. Soc. Linn. Lyon, 1930, n.s. 76, 165 (1931) (Fig. 1). *Andropogon insculptus* Hochst. ex A. Rich. Tent. Fl. Abyss. 2, 458 (1851). *Amphilophis insculpta* (Hochst.) Stapf in Prain, Fl. Trop. Afr. 9, 176 (1917).

A stoloniferous perennial, 30-100 cm high. Sessile spikelets shiny, shallowly grooved below the pit and glabrous, rarely with the margins finely hairy, pedicelled spikelets with one pit. It being scented and having a pit on one side of the seed hull. Leaves, stems and seed-heads are aromatic and aroma persists in stored hay.

Ecology: Fairly common in marshy and hilly habitats.

Specimen Examined: Near IGC, Sadhuwali, Sriganganagar. Sharma & Purohit DCH 671.

Fl. & Fr.: November-January.

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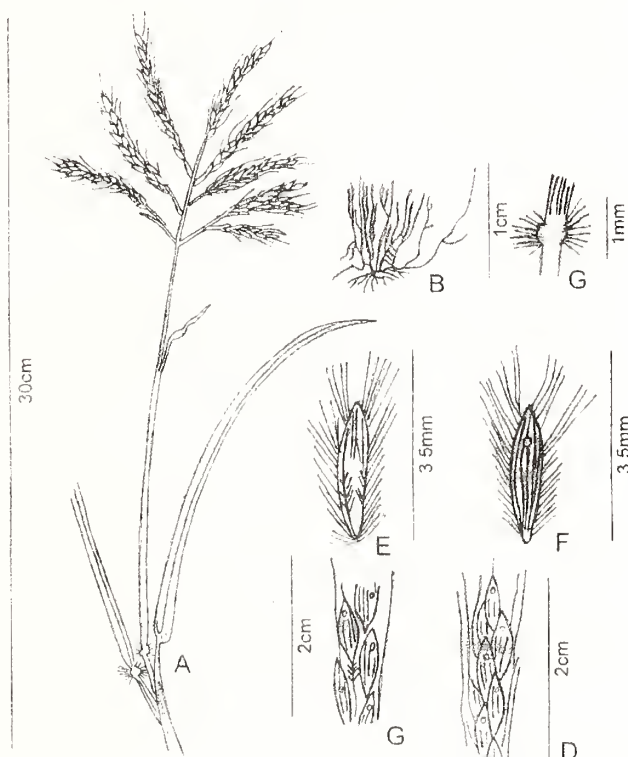


Fig. 1: *Bothriochloa insculpta* (Hochst.) A. Camus
A. Habit; B. Creeping Stem; C. Upper Sterile Spikelets;
D. Lower Sterile Spikelets; E, F. Seed; G. Nose